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Second Party Opinion

Volvo Group Green Finance Framework

Dec. 16, 2024

Location: Sweden

Sector: Automotive

Primary contact

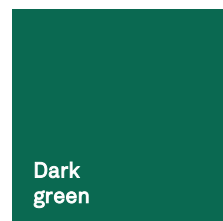
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Alignment With Principles

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

- ✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2023

See [Alignment Assessment](#) for more detail.



Dark green

Activities that correspond to the long-term vision of a low-carbon climate resilient future.

Our [Shades of Green Analytical Approach](#) >

Strengths

Volvo Group is working to decarbonize its product portfolio by investing in the production of battery electric and fuel cell electric vehicles (EVs). It has a target that, by 2030, 35% of its new vehicles sales will be EVs and that by 2040, it will become net zero across its value chain. This is supported by intensity-based and absolute emissions reduction targets for each of its product groups. To date it has achieved a 21% reduction in use-phase scope 3 absolute emissions. Although growing, EVs still account for a minor share of its deliveries at 1% in 2023.

Volvo has a strong process for assessing the environmental impacts of financed projects. It applies a rigorous system based on an internal classification to identify the main risks and benefits of assets, production lines, and research and development (R&D) projects. It also identifies their contribution to the company's strategic and climate goals.

Weaknesses

No weaknesses to report.

Areas to watch

Decarbonizing the product portfolio depends on external factors. These include changes in regulatory support and consumer behavior, as well as the development of low-carbon and renewable fuel infrastructure--namely hydrogen and renewable electricity--that could slow down EV adoption rates.

In this context, Volvo also seeks to improve the energy efficiency of fossil fuel-powered vehicles. While fuel-efficiency improvements can be important levers for decarbonizing the heavy-duty sector, they may result in emissions lock-in from the continued use of fossil fuels. Such investments are not eligible under this green framework, however.

Commercial paper may be issued under this framework, though reporting on it can be a challenge due to the short tenure of the instruments. Volvo Group plans to mitigate this risk by reporting on commercial paper issuance on a quarterly basis while there are instruments outstanding.

Eligible Green Projects Assessment Summary

All proceeds from the financing will finance clean transportation. Volvo expects to allocate the majority of the proceeds to the provision of customer finance for battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs). The remainder will be earmarked for projects related to R&D and production of BEVs and FCEVs.

Based on the project category shades of green detailed below, the expected allocation of proceeds, and consideration of environmental ambitions reflected in Volvo Group's Green Finance Framework, we assess the framework as Dark green.

Eligible projects under issuer's green finance framework are assessed based on their environmental benefits and risks, using Shades of Green methodology.

Clean transportation

Dark green

R&D, production, and provision of customer finance for BEVs and FCEVs.

See [Analysis Of Eligible Projects](#) for more detail.

Issuer Sustainability Context

This section provides an analysis of the issuer's sustainability management and the embeddedness of the financing framework within its overall strategy.

Company Description

Volvo Group manufactures and sells trucks, buses, construction equipment, and marine and industrial engines. It provides heavy- and light-duty trucks under the brands Volvo, Renault Trucks, Mack, Eicher, and Dongfeng Trucks. City and intercity buses, coaches, and chassis are sold under Prevost and Volvo Bus. The Volvo Penta brand name offers engines and power solutions for leisure and commercial vessels, as well as power generations and industrial and off-highway applications.

It also provides financing, insurance, rental, spare parts, repairs, preventative maintenance, service agreements, and assistance services for all its product segments. It is headquartered in Gothenburg, Sweden, and has 104,000 employees globally. In 2023, it generated Swedish krona (SEK) 553 billion in sales (€47.8 billion), with 67% attributable to the trucks segment; 19% to construction equipment; 4% each to buses, Penta, and financial services; and 2% to other group functions. Its main markets are Europe at 43% of sales in 2023, followed by North America at 30%, Asia at 12%, South America at 9%, and Africa and Oceania at 6%.

The company is publicly listed on the Nasdaq Stockholm exchange, and its largest shareholders are Industrivärden (28% voting shares) and Geely Holding (14.7%) as of September 2024.

Material Sustainability Factors

Climate transition risk

Road passenger and freight vehicles contribute approximately 19% of global greenhouse gas emissions according to the International Energy Agency (IEA). The number, scope, and ambition of regulatory requirements regarding greenhouse gases are expected to increase significantly in the future for the automotive sector. For example, the EU expanded the scope of its emission targets for heavy-duty vehicles to include all emissions from heavy and medium trucks, city buses, coaches, and trailers; increased its target by aiming for reductions of 90% by 2040; and introduced an incentive mechanism for zero-emission and low-emission heavy-duty motor vehicles. The U.S. Environmental Protection Agency (EPA) also updated its standards to reduce emissions from heavy-duty vehicles starting in 2027. As a result, climate transition risk management is at the forefront of global original equipment manufacturers (OEMs) and suppliers' strategies and is transforming their value chains. The transformation requires significant investments in manufacturing plants and R&D.

Pollution

The road transportation sector significantly contributes to air pollution, given the mobile combustion of fossil fuel for vehicles, and is one of the main causes of the release of nitrogen oxides, carbon monoxide, and non-methane volatile organic compounds. The implications of such emissions range from declining public health in urban cities to ecosystem harm, such as weaker crop yields in rural areas adjacent to cities. More stringent regulation, such as the EURO 7 emissions standard and U.S. EPA multi-pollution emissions standards, has reduced air pollutants emitted by internal combustion engines. The IEA's net zero emissions scenario expects electric two- or three-wheelers to represent 100% of vehicle shares in 2035, while trucks will be less than 60%. The acceleration in EV adoption could result in less local air pollution related to vehicle use. Nevertheless, since mining is crucial to facilitating the large-scale implementation of EVs, the sector is exposed to the air and wastewater pollution risks of its supply chain.

Waste and recycling

The recyclability of batteries and other significant materials used in vehicles, such as steel and aluminum, are increasingly under the focus of OEMs and regulators, due to the environmental risks associated with disposing of such parts at the end of their life cycles and the emissions associated with their production. To manage such risks, we anticipate that circular product life-cycle management will become more strictly regulated. Although steel and aluminum have established recycling chains, where recovered materials have economic value, vehicle battery recycling is still in its early stages.

Customer health and safety

According to the World Health Organization's 2023 Global Status Report on Road Safety, road fatality rates decreased over the past decade in most regions around the globe, thanks to improving safety gear and regulation. The report found that, in 2023, heavy goods vehicles and those classified as "other", such as buses, accounted for 19% of road fatalities. That said, fatalities related to all vehicle types have decreased globally, with the largest reduction in Europe at 36% between 2010 and 2023. Despite the drop in the likelihood of accidents, human errors, fire incidents, autopilot failures, and more could still cause irreversible damage, such as the loss of life. As such, health and safety are highly material to customers, regulators, OEMs, and auto suppliers, and represent a key driver to develop autonomous vehicles. More broadly, perceptions from the public of poor safety standards can have major and persistent impacts on an entity's reputation, consumer trust, and thus, competitive position.

Issuer And Context Analysis

The framework's eligible project category aims to address the sustainability issues we consider most material for the issuer. Investments in BEVs and FCEVs will help mitigate its climate transition and pollution risks by producing zero tailpipe-emission alternatives to internal combustion engine vehicles (ICEVs). As Volvo Group seeks to ensure recyclability in its vehicles, the financed projects may somewhat mitigate its value chain waste risks. However, increased use of batteries carries an inherent risk due to their metals and hazardous chemical components.

Volvo Group's decarbonization strategy is centered on its product portfolio, resulting in reductions in transport carbon and air pollutant emissions. This is because Volvo Group's largest source of emissions is EV use by end users, which accounted for 95% of its carbon footprint in 2023. The company has a net zero target for 2040 (for scope 1, 2, and 3), and it is working to obtain validation. It also seeks to make EVs at least 35% of its new sales by 2030. To support this, Volvo Group set short- and medium-term absolute and intensity-based targets for each product segment, validated by the Science Based Targets initiative (SBTi) in 2021 as in line with the 1.5 degrees by 2030 scenario. These include reducing emissions from sold heavy duty trucks by 40% per vehicle kilometer (km) and from buses by 40% per vehicle km by 2030, against a 2019 base year. The company is also diversifying its product base by investing in Utility Innovation Group's battery energy storage subsystems.

Part of Volvo Group's strategy is the efficiency improvement of ICEVs. While it can be important for the heavy-duty sector, there is also a risk emissions lock-in due to the continued use of fossil fuels. A second pillar the increased production of BEVs, FCEVs, and ICEVs using lower-carbon fuels (green hydrogen, biogas, and hydrotreated vegetable oil) for all product segments. To date, it has achieved absolute reductions for all its product groups, resulting in use-phase scope 3 emissions decreasing 21% between 2022 and 2023. This was driven by energy efficiency measures, and changes in sales volumes and product mix. That said, the electrification of its portfolio hinges on the widespread adoption of EVs, which may be disrupted by changes in regulation or consumer preference. Fully electric machines and engines accounted for only 1% of Volvo Group's deliveries in 2023. It is positive that it participates in public-private partnerships, such as the First Movers Coalition to promote policy action that supports EV adoption.

Despite accounting for a small proportion of its carbon footprint, Volvo Group is working to reduce the climate and environmental impact of its direct operations. In 2023 its scope 1 and 2 emissions accounted for less than 1% of its total carbon footprint. The company has a SBTi validated target to reduce such emissions by 50% by 2030 against a 2019 base year, achieving a 23% reduction in 2023 compared to 2019. Its measures include energy-efficiency improvements, renewable energy and electricity, and performance certificates for its sites (e.g. from the U.S. Department of Energy). In 2023, 53% of its total energy use came from renewable sources, and although 32% came from natural gas and diesel, these decreased 9% and 10%, respectively, from 2022. Its facilities are managed as per an environmental policy that covers emissions, resource, and chemical use and waste management. It aims to obtain environmental certifications (ISO 14001) for its sites. As its facilities are in industrial areas, its direct biodiversity risks are minimal.

Volvo Group is integrating circular economy and physical climate risk identification into its operations. Each of its larger manufacturing and assembly plants (60) have established waste-reduction strategies aiming to send zero waste to landfills. Volvo Group achieved high levels of recycling in 2023, with around 87% of its waste either recycled or composted, and the remainder sent for incineration with or without energy recovery or landfilled. It regularly assesses the physical climate exposure of its sites in its property management and insurance programs.

Volvo monitors the safety of its products across its value chains as part of its safety policy. The company identified its trucks and buses operating segments as the most at risk due to their use at high travelling speeds or in urban areas. Volvo Group follows regulatory and industry standards of safety while developing its products. It audits safety performance once products are placed on the market, recalling those with safety-related defects, and reviews the safety management systems of its suppliers.

Alignment Assessment

This section provides an analysis of the framework's alignment to Green Bond and Loan principles.

Alignment With Principles

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)

✓ Green Loan Principles, LMA/LSTA/APLMA, 2023

✓ Use of proceeds

We assess the framework's green project category as having a green shade, and the issuer commits to allocating the net proceeds issued under the framework exclusively to finance in part or in full eligible green projects. Please refer to the Analysis Of Eligible Projects section for more information on our analysis of the environmental benefits of the expected use of proceeds. Instruments that will be eligible under this framework include green bonds and green commercial paper. Volvo Group has confirmed that it will ensure it has sufficient eligible projects before issuing. This may include new assets and refinancing existing or fixed assets in acquisitions provided they been in operation between one to three years from time of approval from the green finance committee (GFC). Eligible projects seek to support the electrification of its products, focusing on BEVs and FCEVs.

✓ Process for project evaluation and selection

Volvo Group established its GFC to select eligible assets, allocate proceeds, and monitor the green asset portfolio. The latter is reviewed and updated on a quarterly basis. The GFC also replaces projects that no longer meet the eligibility criteria, reports on their environmental outcomes, updates the green finance framework, and identifies potential environmental and social risks as per the company's sustainability policy. The latter also entails associating investments, assets, and R&D projects with the company's climate and strategic goals using a rigorous system based on an internal classification. The treasury is responsible for obtaining approvals for green customer finance, and an internal electronic system tracks eligible product models. The GFC meets at least once a year and when necessary, and it is formed of senior representatives from Volvo's finance, truck technology, corporate responsibility, and legal departments and the Environmental Director. All decisions must be unanimous.

✓ Management of proceeds

An amount equal to the net proceeds issued under the framework will be allocated to a dedicated register and tracked separately from other forms of financing. Volvo will use an internal, electronic system to identify green customer finance loans. If projects no longer meet the eligibility criteria in the framework, they will be replaced by the GFC or will be held in cash by the treasury department pending future allocation. Unallocated proceeds will be managed in the same way.

✓ Reporting

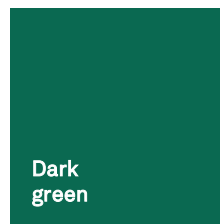
Volvo Group commits to reporting on its allocation of proceeds and the impacts of its financed projects annually in its green finance investor report until full allocation, available on its website. Its allocation reporting will detail the amount and type of financing, the balance of unallocated proceeds, the split of financed and refinanced projects, and the financing and geographical distribution of eligible assets and customer finance. Its impact report will, on an annual basis, outline the expected or actual environmental output and/or impact of financed projects. Both the allocation and impact reports will be subject to data availability and competition and confidentiality considerations. Reporting on commercial paper can be a challenge for issuers due to the short tenure of the instruments. Volvo Group plans to mitigate this risk by reporting on its issuance of commercial paper on a quarterly basis while there are instruments outstanding.

Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the Shades of Green methodology.

Overall Shades of Green assessment

Based on the project category shades of green detailed below, the expected allocation of proceeds, and consideration of environmental ambitions reflected in Volvo Group’s Green Finance Framework, we assess the framework Dark green.



Activities that correspond to the long-term vision of a low-carbon climate resilient future.

Our [Shades of Green Analytical Approach](#) >

Green project categories

Clean transportation

Assessment

 Dark green

Description

Zero tailpipe-emission vehicles, machines, and engines: BEVs and FCEVs:

Research and development:

- Capital and operating expenditure for R&D and design.

Production:

- Capital expenditure for sourcing, tooling, testing concepts; manufacturing; production processes; and production facilities.

Customer finance:

- Customer finance for zero tailpipe emission battery electric and fuel cell EVs, machine, and engines.













Analytical considerations

- Mitigating greenhouse gas emissions from transportation will be crucial to meeting global decarbonization goals since the road transport and freight vehicles account for 19% of global energy-related greenhouse gas emissions, according to the IEA. Fossil fuel-powered vehicles and vessels also create air pollution, such as nitrogen oxides and sulfur oxides. Zero-tailpipe-emission vehicles have an important role in the decarbonization of transport. However, their production entails climate and environmental risks and impacts. These include energy-intensive manufacturing processes, the mining of raw materials and metals (especially for batteries), and circularity.
- We assign Dark green to Volvo Group’s investments in the development and production BEVs and FCEVs, as well as provision of loans to customers purchasing these vehicles. This primarily reflects the role of such projects in the decarbonization of road transport and Volvo Group’s product portfolio, as well as the company’s measures to address energy, waste, physical climate risk, and sourcing in its processes.
- The issuer has confirmed that joint production lines for zero tailpipe and fossil fuel ICE vehicles will not be eligible for financing under this framework. Most of its energy and electricity demand comes from renewable sources at 53% in 2023, although natural gas and diesel still represent 32%. Volvo Group has implemented a system whereby facilities powered by fossil fuel sources are isolated and not included in the scope of this category. Energy efficiency will also be considered if the issuer finances the construction of new facilities and production lines, which would be eligible provided they are dedicated

entirely to in-scope, zero-emission vehicles. Additional risks associated with buildings, such as waste management, water, and physical climate resilience, are managed as per its environmental policy.

- The decarbonization of its product portfolio hinges on the adoption of BEVs and FCEVs by end users and the development of EV and renewable fuel infrastructure and supply chains (green hydrogen). These elements are not in the company's direct control. One of the constraining factors in this transition is the lack of charging infrastructure, as well as the availability of sufficient volumes of renewable electricity. As such, we view positively that Volvo Group is working to increase its availability. One such initiative is Milence, whereby Volvo Group, together with Daimler Trucks and Traton Group, has undertaken to install and operate public charging stations powered by fossil-free electricity for heavy-duty. The project started in Sweden in 2023 with 130 charging points and aims to achieve 1,700 in Europe by 2027. This is complemented by the launch of Volvo Trucks' and its development of the Volvo Connect and Renault Truck Optifleet, for heavy-duty public charging point identification open to all brands and users. Additional measures include signing of a letter of intent with North American Pilot Co. to install charging points for medium- and heavy-duty vehicles at Pilot and Flying J locations.
- Eligible vehicles are exposed to the value chains of the end users that purchase and operate them. While they may reduce certain transport-related emissions, the vehicles may support industries with substantial climate and environmental impacts. We view positively that Volvo Group has excluded the provision of financing for vehicles designated for the transport of fossil fuels from the scope of this framework. Furthermore, Volvo Group has instituted a system that consists of assessing sales involving the provision of customer finance and support from export credit guarantees to certain high-risk end users (e.g. military) and to conflict-afflicted areas for human rights, environmental, and business ethics risks. It engages with potential customers and external organizations if risks are identified, and if they are considered too high, Volvo Group may decide to not proceed. Such sectors include mining, as evidenced by its partnership with mining company Boliden to electrify its underground transport.
- As part of its environmental design tools used to design EVs and products, the company considers recyclability, durability, and remanufacturing, and it avoids substances that could prevent reuse. Volvo Group calculated the recyclability and recovery rates for its battery-electric medium and heavy trucks using ISO standard 22628 and determined that they all have high rates from 92%-99%. However, these figures are only disclosed for battery electric trucks and not its entire product portfolio. In addition, vehicle recycling depends on the availability of supporting infrastructure as well as consumer behavior, which is not in the company's direct control.
- BEVs and FCEVs are inherently exposed to environmental and social risks from the battery value chains--including high energy use, biodiversity loss, and pollution--due to the use of metals (including steel and aluminum) and minerals. Batteries also carry pollution risk in their end-of-life stage from the hazardous substances they contain. These risks may be somewhat mitigated by regulatory requirements, such as those in the EU Batteries Directive. Volvo Group currently obtains its batteries from established producers, namely Samsung DSI, though it has indicated that it may move into this space in the future. It currently focuses on including circularity in the design of its EVs.
- Volvo Group has implemented a responsible purchasing strategy to mitigate upstream supply chain risks. This is based on requirements included in its Supply Partner Code of Conduct and by assessing supplier performance. For tier one suppliers it uses sustainability self-assessments and on-site audits that are based on the standardized questionnaire developed through DRIVE Sustainability Automotive Partnership. Suppliers located in high-risk countries with a contract value above a certain threshold are subject to on-site audits. 93% of partners were covered by self-assessments in 2023, of which 90% had a recorded approved rating. In high-risk areas, it saw 89% completion rate, with 86% obtaining an approved rating. This system is complemented by its Supply Network Due Diligence Program that is focused on certain materials and minerals (tin, tantalum, tungsten, gold, and cobalt) that follows the recommendations of the OECD due diligence guidance. For such materials, assessments are conducted through the Responsible Mining Initiative. Volvo Group has partnered with mining company Norsk Hydro to establish a roadmap for zero-emissions aluminum by 2030, to be implemented in its supply chain by 2040. If successful, this could reduce its raw material upstream emissions. In addition, Volvo includes physical climate risks in its sourcing strategy to ensure the resilience of its supply network. This entails using scenario analysis to ascertain the level of risk associated with the sites from which it obtains its sources and to determine if adaptation measures have been implemented, if necessary. Currently, it has found the overall exposure of its network to be low.

S&P Global Ratings' Shades of Green

Assessments					
 Dark green	 Medium green	 Light green	 Yellow	 Orange	 Red
Description					
Activities that correspond to the long-term vision of an LCCR future.	Activities that represent significant steps toward an LCCR future but will require further improvements to be long-term LCCR solutions.	Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term LCCR solutions.	Activities that do not have a material impact on the transition to an LCCR future, or, Activities that have some potential inconsistency with the transition to an LCCR future, albeit tempered by existing transition measures.	Activities that are not currently consistent with the transition to an LCCR future. These include activities with moderate potential for emissions lock-in and risk of stranded assets.	Activities that are inconsistent with, and likely to impede, the transition required to achieve the long-term LCCR future. These activities have the highest emissions intensity, with the most potential for emissions lock-in and risk of stranded assets.
Example projects					
 Solar power plants	 Energy efficient buildings	 Hybrid road vehicles	 Health care services	 Conventional steel production	 New oil exploration

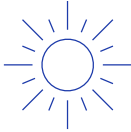




Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

LCCR--Low-carbon climate resilient. An LCCR future is a future aligned with the Paris Agreement; where the global average temperature increase is held below 2 degrees Celsius (2 C), with efforts to limit it to 1.5 C, above pre-industrial levels, while building resilience to the adverse impact of climate change and achieving sustainable outcomes across both climate and non-climate environmental objectives. Long term and near term--For the purpose of this analysis, we consider the long term to be beyond the middle of the 21st century and the near term to be within the next decade. Emissions lock-in--Where an activity delays or prevents the transition to low-carbon alternatives by perpetuating assets or processes (often fossil fuel use and its corresponding greenhouse gas emissions) that are not aligned with, or cannot adapt to, an LCCR future. Stranded assets--Assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (as defined by the University of Oxford).

Mapping To The U.N.'s Sustainable Development Goals

Where the Financing documentation references the Sustainable Development Goals (SDGs), we consider which SDGs it contributes to. We compare the activities funded by the Financing to the International Capital Markets Association (ICMA) SDG mapping and outline the intended linkages within our SPO analysis. Our assessment of SDG mapping does not impact our alignment opinion.

This framework intends to contribute to the following SDGs:

Use of proceeds	SDGs				
Clean transportation	 7. Affordable and clean energy	 9. Industry, innovation and infrastructure	 11. Sustainable cities and communities*	 12. Responsible consumption and production	 13. Climate action

*The eligible project categories link to these SDGs in the ICMA mapping.

Related Research

- [Analytical Approach: Second Party Opinions: Use of Proceeds](#), July 27, 2023
- [FAQ: Applying Our Integrated Analytical Approach for Use-of-Proceeds Second Party Opinions](#), July 27, 2023
- [Analytical Approach: Shades of Green Assessments](#), July 27, 2023
- [S&P Global Ratings ESG Materiality Maps: Autos](#), July 20, 2022

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Second Party Opinion: Volvo Group Green Finance Framework

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